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EXAMINER

YODER III, CHRISS S

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 02/02/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/576,266

Applicant(s)

HELLSTRAND, MAGNUS

Examiner

Chriss S. Yoder, III

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 14-26 and 30 is/are rejected.
- 7) ☒ Claim(s) 10-13 and 27-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/24/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to because of the lack of proper labeling (e.g. identifying each element in the figure with a proper label). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

1. Regarding claim 16, the phrase "or another" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
2. Regarding claim 30, the phrase "also many other" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Suda et al. (US Patent # 6,088,060).
4. In regard to claim 1, note Suda discloses the use of an optical apparatus (column 1, lines 40-42; and figure 1: 1), a controllable optical convergence means (column 1, lines 63-65; and figure 1: 8), image detection means (column 1, lines 40-43; and figure 1: 2), a processing means to control the optical convergence means in order to focus the object (column 1, lines 63-67; and figure 1: 5, 10, and 7), a search operation that analyzes the image to find at least one window in the image for which focusing is done (column 7, lines 32-35; and figure 4), and a focusing function means providing focus in the image window based on distinct difference between pixels (column 3, lines 57-65; the automatic focusing means uses the calculating means to determine the difference information; and figure 9a shows the iterative process of detecting a focusing window). As for the use as an infrared optical apparatus, this is merely an intended use, and the Suda device can be used in this manner.
5. In regard to claim 24, this is a method claim, corresponding to the apparatus of claim 1. Therefore, claim 24 has been analyzed and rejected as previously discussed with respect claims 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Suda et al. (US Patent # 5,739,858).

7. In regard to claim 2, note the primary reference of Suda (Patent # 6,088,060) discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose the use of coarse focusing based on low frequencies and fine focusing based on high frequencies. Suda (Patent # 5,739,858) discloses the use of coarse focusing based on low frequencies and fine focusing based on high frequencies (column 3, line 60– column 4, line 13; Suda discloses the use of a function of high and low frequencies and depending on the output of the function adjusts the output of the motor to focus). Suda teaches that the use of coarse focusing based on low frequencies and fine focusing based on high frequencies is preferred in order to reduce the time it takes to focus on the object. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary reference to include the use of coarse focusing based on low frequencies and fine focusing based on high frequencies in order to reduce the time it takes to focus on the object.

8. In regard to claim 25, this is a method claim, corresponding to the apparatus of claim 2. Therefore, claim 25 has been analyzed and rejected as previously discussed with respect claims 2.

9. Claims 3 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Suda et al. (US Patent # 5,739,858) as applied to claim 2 above, and further in view of Pettersson et al. (US Patent # 6,341,180).

10. In regard to claim 3, note the primary reference of Suda in view of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, a focusing function means providing focus in the image window based on distinct difference between pixels, the use of coarse focusing based on low frequencies and fine focusing based on high frequencies, and Suda (Patent # 5,739,858) also discloses the use of "hill-climbing" to analyze the focusing (column 3, line 60– column 4, line 13; with low frequencies the coarse focusing continues in the same direction). Therefore it can be seen that the primary reference lacks the use of "curve-fitting" to analyze the focusing. Pettersson discloses the use of "curve-fitting" to analyze the focusing (column 2, lines 21-25). Pettersson teaches that the use of "curve-fitting" to analyze the focusing is preferred in order to better estimate the optimal focus. Therefore, it would have been obvious to one of ordinary skill in the

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art to modify the primary reference to include "curve-fitting" to analyze the focusing in order to better estimate the optimal focus.

11. In regard to claim 26, this is a method claim, corresponding to the apparatus of claim 3. Therefore, claim 26 has been analyzed and rejected as previously discussed with respect claims 3.

12. Claims 4-8, 17, 19-21, 23, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Williams et al. (US Patent #6,281,970).

13. In regard to claim 4, note Suda discloses the selection of a focus window area other than the most centrally situated area (column 7, lines 30-35; and figure 4). Williams discloses the combination of the focusing device with supporting decision-making systems (column 7, lines 8-25; and figure 8: the computer and the pan/tilt devices). Therefore, it can be seen that the device lacks the storage of digital images in memory. Official notice is taken that the concepts and advantages of the storage of digital images is notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Suda in view of Williams to include the storage of digital images in order to store an accurate image that can be recalled at a later time.

14. In regard to claim 5, note Suda discloses the selection of a focus window area using the differences between pixels (column 3, lines 53-65; the automatic focusing means uses the calculating means to determine the difference information). Therefore, it can be seen that the Suda device fails to couple the device to sensor instrumentation

enabling focusing on objects depending on their thermal properties. Williams discloses the use of an infrared sensor to capture the images (column 2, lines 35-40) coupled to a sensor instrumentation (column 7, lines 5-7) detecting the differences in thermal properties. Williams teaches that the use of an infrared sensor to detect differences in thermal properties is preferred in order to detect heat such as forest fires in order to observe and research the specific hotspot. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Suda device to include the use of an infrared sensor and sensor instrumentation in order to observe and research specific hotspots.

15. In regard to claim 6, note Williams discloses that the sensor instrumentation monitors predetermined temperature differences or changes (column 15, lines 1-4; while scanning the image, it is monitoring for predetermined levels).

16. In regard to claim 7, note Williams discloses a computer connected to the radiometer (figure 8: 184 and 200; this is considered to be the equivalent to a radiometric calibration device, which sets the temperature levels to scan for).

17. In regard to claim 8, note Williams discloses sensor instrumentation and a calibration device, which are used to monitor predetermined temperatures or temperature intervals in the image (column 7, lines 32-38; and column 15, lines 1-4).

18. In regard to claim 17, note Suda discloses the selection of focusing areas (column 7, lines 32-35). Therefore, it can be seen that the Suda device fails to calculate possible ranges for focus at a certain temperature. Williams discloses that the selection of areas is based on temperatures (column 3, lines 55-59), while leaving out the areas where processing is not needed in order to reduce the processing required (column 3,

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lines 55-59; the device only selects the hotspots which implies that the areas which are not desired are not used). Williams teaches that the selection of areas is based on temperatures is preferred in order select focus areas only based on specific temperatures such as forest fires, which prevents the selection of areas of incorrect temperatures. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Suda device to include the selection of areas of focus based on specific temperatures in order to prevent incorrect selection of focus areas (i.e. wrong temperatures).

19. In regard to claim 19, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose the use of pan-tilt type equipment that controls a repeated sequence of movements between objects or focus windows within the viewed image and may send notification in response to trigger conditions. Williams discloses the use of a pan-tilt device that controls a repeated sequence (figure 1a: the nutation and direction of scan show a repeated sequence of movements) within the viewed area, and sends notification messages in response to predetermined trigger conditions (column 3, lines 54-60; and column 15, lines 1-4; the hotspots are the trigger condition). Williams teaches that the use of pan-tilt type equipment that controls a repeated sequence of

movements between objects or focus windows within the viewed image and may send notification in response to trigger conditions is preferred in order to detect when hotspots have been located and to notify the user. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Suda device to include use of pan-tilt type equipment that controls a repeated sequence of movements between objects or focus windows within the viewed image and sending notification in response to trigger conditions is preferred in order to detect when hotspots have been located and to notify the user.

20. In regard to claim 20, note Williams discloses that the computer stores the topographic map of the viewed area (column 6, lines 62-66; and figure 8: the computer stores the terrain map), and using this map to focus on specific areas of the viewed area (although it does not explicitly state that this is focus data, it is implied that since this map contains distance information, that it is used for focusing).

21. In regard to claim 21, note Williams discloses that the trigger conditions comprise the thermal conditions within the area (column 3, lines 54-60; and column 15, lines 1-4; the hotspots are the trigger condition).

22. In regard to claim 23, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary

reference fails to disclose the use of GPS to calculate the position of the viewed objects. Williams discloses the use of GPS to calculate the position of the viewed objects (column 1, lines 15-17; and figure 11: 37 and 252). Williams teaches that the use of GPS to calculate the position of the viewed objects is preferred in order to properly research, observe, and measure the characteristics of forest fires. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Suda device to include the use of GPS to calculate the position of the viewed objects in order to properly research, observe, and measure the characteristics of forest fires.

23. In regard to claim 30, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose a specific use for the device. Williams discloses using the device for the inspection, monitoring, and surveillance of the forest fires (column 1, lines 26-28). Williams teaches that the use of this device is preferred to be used for research, observation, and measurement because the thermal capabilities can distinguish forest fires from the rest of the image. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Suda device to be used for surveillance in order to properly distinguish forest fires from the rest of the image.

24. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Sato et al. (US Patent # 5,861,915).

25. In regard to claim 9, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose the automatic calibration of the relation between temperature of the optics and the focus position of the optics. Sato discloses the automatic calibration of the relation between temperature of the optics and the focus position of the optics (column 5, lines 49-52; and figure 1: 5, 13, and 41). Sato teaches that the automatic calibration of the relation between temperature of the optics and the focus position of the optics is preferred in order to compensate for defects caused by differences in temperature. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the automatic calibration of the relation between temperature of the optics and the focus position of the optics in order to compensate for defects caused by differences in temperature.

26. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Suda (US Patent # 6,556,246).

27. In regard to claim 14, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means

to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose the coupling of a device to enable focusing on moving objects where the focus window is movable across the image and follows the moving object in the window. Suda discloses the focusing on moving objects where the focus window is movable across the image and follows the moving object in the window (column 3, lines 41-45; and column 6, lines 5-10; and figure 4; the image focusing device detects movement, which may include image-shake, and follows the movement in the image plane). Suda teaches that the focusing on moving objects where the focus window is movable across the image and follows the moving object in the window is preferred in order to correct for image shake. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include focusing on moving objects where the focus window is movable across the image and follow the moving object in the window in order to correct for image shake.

28. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Kaneda (US Patent # 6,246,437).

29. In regard to claim 15, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which

focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose the use of geometric shapes to find the image window to focus. Kaneda discloses the recognition of geometric shapes to find the image window to focus (column 8, lines 20-23). Kaneda teaches that the use of geometric shapes to determine the focus area is preferred in order to compensate for vibrations. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of geometric shapes to determine the focus area in order to compensate for vibrations.

30. In regard to claim 16, note Kaneda discloses the recognition of geometric shapes to find the image window to focus the storage of the geometric shapes (column 8, lines 20-23). Although Kaneda does not explicitly disclose the storage of the geometric shapes, the storage of the geometric shapes is necessary in order for comparison and tracking of the shape.

31. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of McIntyre et al. (US Patent # 5,752,115).

32. In regard to claim 18, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary

reference fails to disclose that it sets the focus position to infinity when no object is found in the image. McIntyre discloses that the focus position is set to infinity when no object is found in the image (column 7, lines 1-25). McIntyre teaches that setting the focus position to infinity when no object is found in the image is preferred in order to establish proper focus and capture a clear image. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to set the focus position to infinity when no object is found in the image in order to establish proper focus and capture a clear image.

33. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al. (US Patent # 6,088,060) in view of Lee (US Patent # 6,507,366).

34. In regard to claim 22, note the primary reference of Suda discloses the use of a controllable optical convergence means, image detection means, a processing means to control the optical convergence means in order to focus the object, a search operation that analyzes the image to find at least one window in the image for which focusing is done, and a focusing function means providing focus in the image window based on distinct difference between pixels. Therefore, it can be seen that the primary reference fails to disclose the use of an automatic zooming device. Lee discloses the use of an automatic zooming device (column 3, lines 28-31; and figure 1: 6). Lee teaches that the use of an automatic zooming device is preferred in order to track an object that moves away from the imaging device. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include an

automatic zooming device in order to track an object that moves away from the imaging device.

Allowable Subject Matter

Claims 10-13 and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

35. As for claims 10, the prior art does not teach or fairly suggest an image focusing device that processes an image to find at least one window to which focusing is to be done dependent upon characteristics within the window, as well as estimating the distance from the device to an object using the temperature and/or position of the optics.

36. As for claims 27, the prior art does not teach or fairly suggest an image focusing method that processes an image to find at least one window to which focusing is to be done dependent upon characteristics within the window using the function:

$$FMF(z) = \frac{1}{N} \sum (K \otimes I_z - m)^2$$

where K is an operator, N is a factor of normalization, and m is a variable.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US005621457A: note the use of tracking a geometric shape (eye).

US006072525A: note the use of storage of shape information.


US005790710A: note the use of curve fitting techniques.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (703) 305-0344. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-HELP.

CSY
January 26, 2004


NGOC-YEN YU
PRIMARY EXAMINER